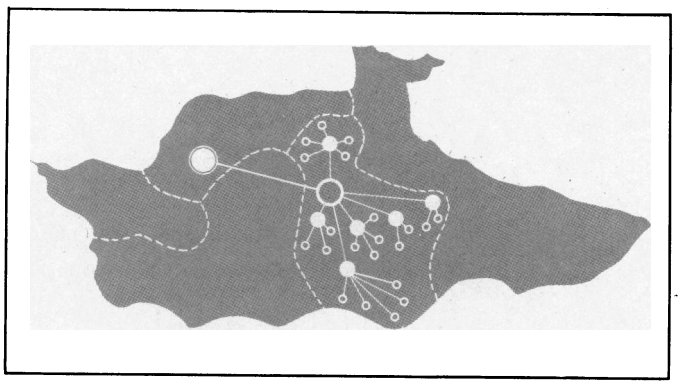
The Venezuelan *Medicina Simplificada* Program



ANN S. YATES, MA

MEDICINA SIMPLIFICADA (simplified medicine) is a Venezuelan program designed to provide basic health services to the country's rural population. The program employs nonprofessional or auxiliary workers in a regionalized, health care delivery system in which the auxiliaries are supervised by nurses and physicians and, when necessary, the auxiliaries refer patients to more skilled personnel.

Although well known to health workers in many developing countries, particularly in Latin America, *medicina simplificada* has received little attention thus far in the United States. The few materials available on the program that are printed in English are brief summaries *(1–3)* or not readily accessible *(4)*. Considerably more information is available on the older, established medical-auxiliary programs in Africa, as well as on those in Russia and China *(5–12)*.

Now that we in the United States are increasingly experimenting with the use of paramedical and auxiliary personnel in health care *(13,14)*, it may be instructive to know more about the Venezuelan program. Of course, the program cannot be duplicated here because our health problems and resources differ quantitatively and qualitatively from those of Venezuela. Nevertheless, its central ideas and principles may provide us with some valuable pointers.

The following are definitions of several terms, as used in this paper. "Auxiliary" refers to a health worker who has distinctly less competency and training than professional or paramedical ("alongside of") workers, such as physicians, nurses, sanitary engineers, and dentists *(1,5)*. "*Medicina simplificada* auxiliaries" are those trained specifically to staff rural dispensaries in Venezuela; they function within an organized health service, have clearly defined duties and responsibilities, and work under the supervision of qualified physicians and nurses. "Aide" refers to the untrained person who worked in rural dispensaries before the *medicina simplificada* program was begun.

Evolution of *Medicina Simplificada*

Rural health problems in developing countries are discussed in a number of reports *(6–8, 15–18)*. In the early 1960s, Venezuelan health planners described their situation as follows *(19a)*:

□*Ms. Yates, a doctoral candidate at Cornell University, is assistant professor of sociology at Pitzer College. Her research on the medicina simplificada program was made possible by Prof. Parker Marden of Lawrence University, Appleton, Wis., and Dr. Emilio Lopez Vidal of the International Health Division of the Ministry of Health and Social Assistance, Caracas, Venezuela. Tearsheet requests to Ann S. Yates, Pitzer College, 1150 Mills Ave., Claremont, Calif. 91711.*

An important sector of the Venezuelan population currently lives in rural areas. Because of its poor communications, its poverty, and its lack of development, this population is very susceptible to disease-causing agents; it does not, however, have at its disposal the means which science can provide for the defense of good health.

Table 1. Distribution of the population of Venezuela according to size of town or village, 1961

Size of town or village	Number of towns or villages	Absolute population	Percent of total population
Total	24,177	7,523,999	100.0
Urban	227	4,705,288	62.5
100,000 or more	5	2,020,958	26.8
10,000–99,999	68	1,966,014	26.1
2,500–9,999	154	718,316	9.6
Intermediate	256	373,336	5.0
2,000–2,499	39	85,434	1.2
1,000–1,999	217	287,902	3.8
Rural	23,694	2,445,375	32.5
500–999	567	389,878	5.2
200–499	2,372	696,880	9.3
100–199	4,157	583,607	7.7
50–99	5,497	390,512	5.2
Under 50	11,101	287,242	3.8
Dispersed	.....	97,256	1.3

SOURCE: Anuario estadistico de Venezuela, 1957 – 1963. Ministerio de Fomento, Direccion General de Estadistica y Censos Nacionales, Caracas, 1964.

At the time of the 1961 census, almost one-third of the Venezuelan population lived in 23,694 villages of less than 1,000 inhabitants, and about half of these villages had fewer than 50 residents (table 1). Many of the rural settlements were isolated, and their residents were enmeshed in chronic economic and social problems—inefficient farming methods, low income, little education, poor housing, and inadequate sanitation. Their health was also poor. Although accurate vital statistics are unavailable for the early 1960s, health officials agree that infant and maternal mortality were unusually high in the rural areas, compared with the country as a whole, and that preventable respiratory, infectious, and parasitic diseases took a disproportionate toll in lives *(18,19b,20)*.

The existing health services were not adapted to serve the needs of the rural population. The physicians were concentrated in the urban areas, and many rural zones were without a physician. Qualified nurses were even scarcer. Aides were more readily available at some 1,036 rural dispensaries, but many of them did little more than assist the physician when he came for periodic visits. Aides who attempted to provide other services, such as dispensing drugs or delivering babies, however, were often regarded as dangerous because of their lack of training or supervision.

Obviously, this system of rural health services was unsatisfactory. Patients often did not receive medical attention when they most needed it because the physician was not available; when he was at the dispensary, there were so many patients that he could not give adequate attention to all of them. Further, the physicians had almost no time for health education or preventive measures such as immunization campaigns or screening *(19c)*.

Realizing that it would be years before they could afford to train enough physicians and nurses to meet the demands for rural health manpower, health planners decided to take advantage of the resources they had and to train the dispensary aides. This decision was influenced by previous successes in using auxiliary workers to combat tuberculosis, malaria, yellow fever, and plague in Venezuela, as well as by the experiences of other developing countries with auxiliary programs *(19d,21)*. Under the leadership of Dr. José T. Baldó, public health officials planned and then initiated a pilot project in the Amazon region in 1962. The experiences gained there led not only to the expansion of the program but also helped to allay some of the fears of many physicians about the use of auxiliaries.

Between 1962 and the end of 1970, 466 persons received the *medicina simplificada* training, described later in this paper, and 247 rural dispensaries were staffed by trained auxiliaries (tables 2 and 3). Of the 466 trainees, 109 were not employed by the Ministry of Health; they were, for example, missionaries, forest rangers, and border guards who worked in rural areas.

Table 2. Number of *medicina simplificada* courses given and number of auxiliaries trained, 1962—70[1]

State and year of first course	Number of courses	Number of persons trained	Number of Ministry of Health trainees	Number of other trainees
Amazonas, 1962	8	81	45	36
Apure, 1963	11	104	62	42
Trujillo, 1963	5	50	43	7
Guarico, 1964	2	14	14	....
Aragua, 1964	7	68	50	18
Yaracuy,1965	1	8	8	....
Zulia, 1965	11	93	90	3
Carabobo, 1969	....	35	35	....
Barinas, 1970	1	8	5	3
Portuguesa, 1970	1	5	5	....
Total	51	466	357	109

[1]Programs were initiated in the States of Merida and Tachira in 1971.
Source: reference 20.

Concepts and Organization of the Program

Basic concepts. Several basic principles have guided the *medicina simplificada* program since its inception *(18–20)*. First, rural health care must be permanent and accessible. Second, it should be as comprehensive as possible. In particular, as much emphasis should be placed on health education and preventive measures as on curative care. Third, comprehensive care can best be delivered by a team whose members may include not only various types of health workers but also others whose work may affect the health of a community, for example, teachers, community organizers, and agricultural extension agents. Inclusion of these other

Table 3. Dispensaries with and without *medicina simplificada* program, 1970[1]

State	Number of dispensaries	Number with program	Number without program
Apure	46	46	.....
Amazonas	18	18	.....
Aragua	42	37	5
Guarico	126	12	114
Trujillo	110	30	80
Yaracuy	34	7	27
Zulia	62	62	.....
Carabobo	41	25	16
Portuguesa	65	5	60
Barinas	120	5	115
Total	664	247	417

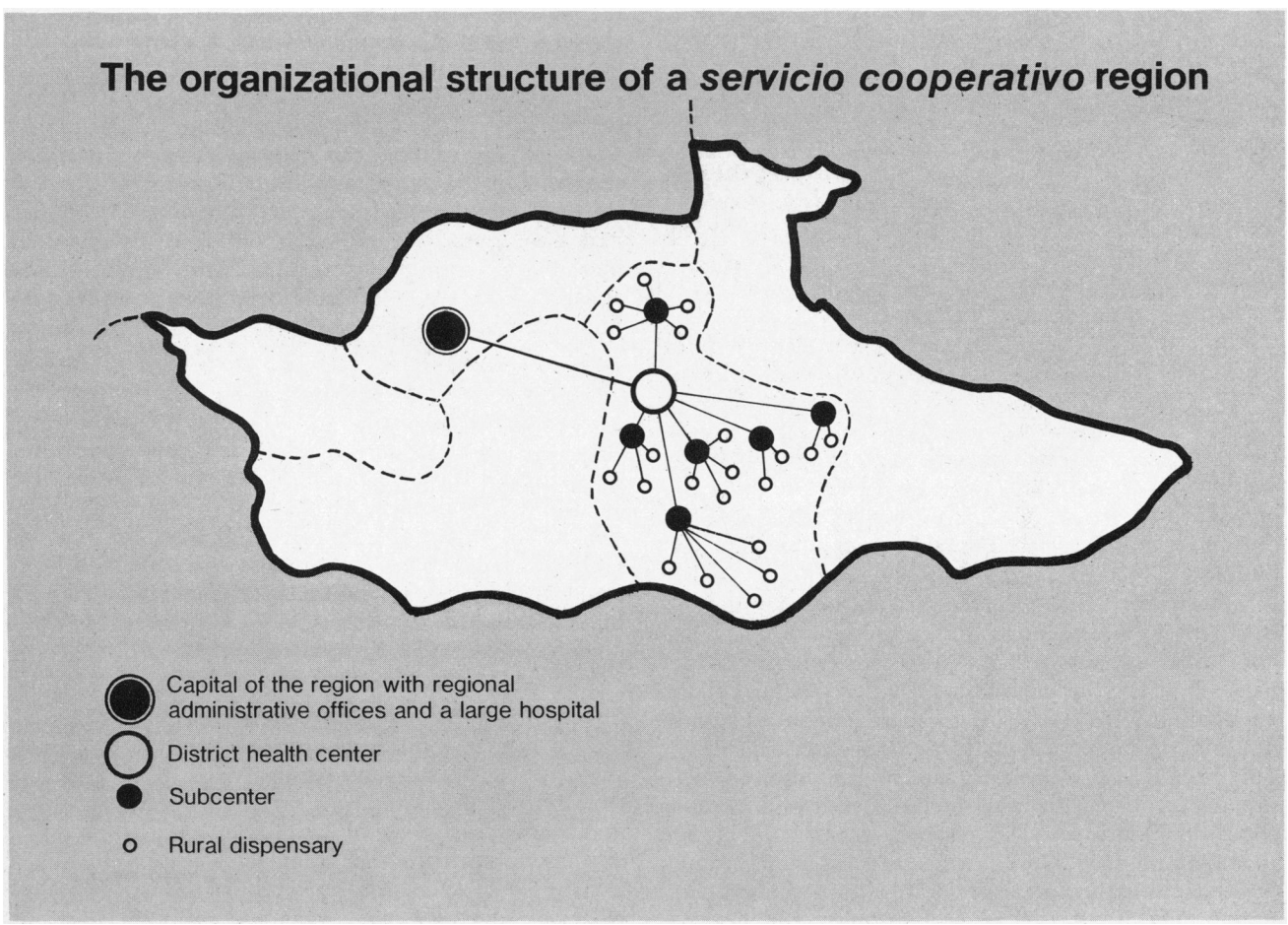
[1]Figures for the States of Merida and Tachira, where the program was introduced in 1971, are not available.
Source: reference 20.

workers is predicated on the principle that the attainment of lasting gains in health are intimately linked to educational opportunities, economic well-being, adequate housing, and a healthy environment. A final guideline of the program is to enforce minimum national standards in its services while promoting innovation at the local level. Auxiliaries and their supervisors are encouraged to base their planning on epidemiologic studies of the specific populations to be served and to use existing local resources in their programs.

Organizational requirements. When the preceding concepts were translated into a workable program for *medicina simplificada,* several organizational prerequisites were identified: a hierarchal system of medical services, an adequate training program, periodic supervision of and a referral system for the auxiliaries *(19),* and financing.

HIERARCHAL SYSTEM OF MEDICAL SERVICES. *Medicina simplificada* auxiliaries work only in States and Federal territories that cooperate with the Ministry of Health in a regionalized system of health services, the *Servicio Cooperativo* (see map). As of 1971, 12 of Venezuela's 22 States and Territories had joined the plan.

Each of the participating States or Territories constitutes a health region with administrative offices and a large well-equipped hospital located in the State capital. Each region is divided into districts, and each district is headed by a health center. The centers are staffed by several physicians and nurses and a number of auxiliaries; they are equipped with laboratories, X-ray equipment, and hospital beds for obstetrics, pediatrics, some types of surgery, and general



Source: reference 19

medicine. The centers also offer extensive outpatient services and educational programs.

Dependent upon each health center are 8 to 10 subcenters *(medicaturas rurales)*, located in communities of 2,000 to 5,000 inhabitants. The subcenters, staffed by a full-time general practitioner and a few auxiliaries, are mainly ambulatory care facilities, although some have several beds for maternity and pediatric patients. The last link in the organizational structure is the rural dispensary, located in communities of less than 2,000 residents and staffed by a *medicina simplificada* auxiliary. Each subcenter is generally responsible for three to five dispensaries.

SELECTION AND TRAINING OF AUXILIARIES. When the *medicina simplificada* program is introduced into a health region, the training is automatically offered to the aides who already staff the dispensaries. Selection of replacements and recruits for new dispensaries, however, is based on several criteria which reflect the general policy of the *medicina simplificada* program to seek workers who will be permanent residents in their communities. The most important prerequisite is that the auxiliaries are natives or long-time residents of the localities in which they will work. The rationale for this prerequisite is that a person who knows the community well—shares its mentality, customs, and fears and speaks its language—is the best possible agent to introduce changes in health care practices. Further, natives do not face the adjustment problems which may encourage outsiders to migrate.

New recruits must have leadership ability, be between 18 and 40 years old, and have a primary school education. When necessary, however, literate persons with less formal schooling are accepted. During the early years of the program, preference was given to women, and they are still frequently selected for many posts. Men are more widely used now, however, and are preferred for the more isolated, less-developed zones as well as for supervisory positions.

While most of the persons who receive the *medicina simplificada* training are chosen to staff specific dispensaries, various other people whose work takes them to isolated rural areas are also enrolled—missionaries, veterinarians and their aides, border guards, and forest rangers. These volunteers, as they are called, are expected to offer simple health services, particularly preventive or emergency ones, in addition to or in conjunction with their regular employment.

The *medicina simplificada* training takes 4 months and is offered to a maximum of 20 persons at a time. The courses are usually held at health centers in the district capitals where the environment is fairly rural but the caseload sufficiently varied for instructional purposes. Training in larger, urban hospitals is discouraged, not only because the techniques and equipment used there are inappropriate to rural facilities, but also because the trainees may lose their community ties and choose to stay in the city. The course is directed by a specially trained graduate nurse, preferably from the trainees' region. She is assisted in both lectures and practice training by the district medical officers and by one of four national *medicina simplificada* nurses.

The training program is extremely practical—it deemphasizes theory and stresses the acquisition of specialized skills in defined areas of work: public health, administration, and epidemiology of communicable diseases; nursing; maternal and child care; treatment of acute and chronic diseases of the region and first-aid procedures; environmental sanitation; and health education. The procedures which the students are required to know are clearly set out in an instructional manual. When the trainees become auxiliaries, they use their manuals at the dispensaries *(19)*. The number of hours spent on the various procedures varies from course to course, depending on the abilities of the trainees and somewhat on the major health problems in their areas *(20a)*.

The instructors use a variety of teaching methods, including lectures and demonstrations; clinical experience in emergency care, pediatrics, obstetrics, gynecology, and general medicine; preventive and educational work in the health center and subcenters in the district; home visits; weekly seminars to discuss problems encountered; and group presentations on such themes as the prevention of infection, organization of community groups, and beliefs concerning illness and death. Special emphasis is given to experience in the delivery room and to other aspects of maternal and child care so that the auxiliary will be able to train and supervise lay midwives upon her return home.

Professional ethics are discussed during the training period, but not presented as a separate subject. At all stages of the training, the instructors keep reminding the students that since they will be integral members of the rural health team, they must understand the duties and limitations of their particular role. Emphasis is placed on maintaining confidentiality and on the referral of patients who have conditions that the auxiliaries are not qualified to treat.

REFERRAL AND SUPERVISION. The *Servicio Cooperativo* is well designed to provide referral services for the *medicina simplificada* auxiliaries once they are on the job. At any time, the auxiliary may send patients who have complicated illnesses or need emergency care to the nearest subcenter where the physician may treat the patients or send them to the district health center or regional hospital if necessary. In addition, the physician from the nearest subcenter visits each dispensary in his area once a week or once every 2 weeks to see the nonemergency patients the auxiliary refers to him.

The supervision of the auxiliaries also depends directly upon the *Servicio Cooperativo* hierarchy. The auxiliaries receive some supervision and instruction from the physician during his regular visits, of course, but they are also evaluated by a regional supervisory nurse and by the chief nurse of the district. One or the other of these nurses visits each auxiliary weekly or biweekly to help her to solve problems and to improve her skills.

FINANCING. The *medicina simplificada* program of each

region is financed from the region's general health budget, which is funded from both State and Federal revenues. An auxiliary's monthly salary is approximately 50 bolivares (50 Bs), and the expenditures for the medicine and upkeep of each dispensary averages 1,000 Bs a month (1 U.S. dollar is equivalent to 4.30 Bs). The other major monthly expenses include 1,500 Bs in salary for the regional supervisor, 300 Bs for his travel expenses, and 1,500 Bs in salary for the district supervisor.

Auxiliaries' General Work Plan

A trained auxiliary ideally spends approximately one-half of each working day on preventive health care and the other half on curative care, in addition to keeping records on the births, deaths, and population size of the communities in the area.

Preventive health care. Maternal and child care is a principal activity of the auxiliaries. They attempt to give periodic examinations to all pregnant women in their areas, to immunize them against tetanus, and to schedule each one for at least two appointments with a physician. The auxiliary generally does not attend births, however, as this service may be too time consuming. Expectant mothers are encouraged to go to a health subcenter or center for delivery or, if the distance is too great, to use a lay midwife who has been trained by an auxiliary.

In their child care program, the auxiliaries attempt to examine babies once a month until they are 2 years old and then every 3 or 4 months until they are 6 years old. Particular attention is given to signs of undernourishment, and underweight youngsters are enrolled in a National Institute of Nutrition program which provides a high-protein powder product free of charge. In addition, the auxiliaries suggest dietary improvements—which rely on cheap, easily obtainable products—and prescribe iron-based supplements for anemic children.

Auxiliaries are also active in providing smallpox, tuberculosis, poliomyelitis, DTP, yellow fever, typhus, tetanus, rabies, and measles immunizations to the eligible children and adults in their areas. Many auxiliaries use an ingenious but simple card system to remind them when a patient is due for an immunization. If he does not appear at the dispensary on time, the auxiliary seeks him out at home with the indicated immunization in hand.

The auxiliaries also participate in health education and social action activities, which include giving educational talks to school children and community organizations and coordinating the efforts of various community workers (for example, home demonstrators, agricultural extension agents, and school teachers) in such projects as construction of latrines and purification of water.

Curative services. Medicina simplificada auxiliaries are trained in emergency procedures such as immobilizing fractures, controlling hemorrhages, and treating patients for shock, burns, snakebites, or cuts. After administering first aid in such cases, the auxiliaries must refer the patients to the nearest physician for care.

The auxiliaries can also practice simple curative medicine. The diseases which they may treat on their own are those which are prevalent in the rural areas and fairly easy to recognize—the common cold, tuberculosis, parasitic disorders, anemia, malnutrition, malaria, venereal diseases, common skin disorders, measles, mumps, chicken pox, and whooping cough. The curative procedures and drugs which the auxiliaries are allowed to use are defined specifically in the *medicina simplificada* manual and are ones which pose little danger to the patient.

The auxiliary is also trained to recognize the symptoms of common illnesses which may not have reached the acute stage (for example, leprosy, tuberculosis, and malaria), to seek out such patients, and to supervise their home care after they have consulted a physician.

Compilation of demographic data. The *medicina simplificada* auxiliaries are responsible for reporting monthly all births and deaths (by cause if possible) which occur in their areas. They are also required to conduct an annual census of all the villages in their areas, gathering information on the number and ages of members of each household, the condition of housing and the types of animals owned. This data-gathering function is considered crucial by *medicina simplificada* officials. Before the auxiliaries undertook this work, health planners had almost no demographic or epidemiologic data on which to base health care programs for rural areas.

Program Problems and Successes

Several kinds of personnel problems have arisen in the program. Initially, some of the existing dispensary attendants refused to be trained, while others were too old and set in their ways to benefit from the course. As the program developed, however, such difficulties have virtually disappeared; the auxiliaries are increasingly regarded by their supervisors as eager learners and competent workers. Physicians also have posed problems. While the initial difficulty of convincing the rural physicians to accept and work closely with the auxiliaries has been largely overcome, another difficulty remains—the rapid turnover of the physicians who serve the rural subcenters and work most closely with the auxiliaries. These physicians tend to move to more desirable positions almost as soon as they become well-enough acquainted with the auxiliaries and the local health problems to have a significant impact.

Another prevalent difficulty early in the program was competition from folk doctors, ambulatory drug vendors, pharmacists, and others. This competition has not been so serious in recent years, however, as many folk doctors have been convinced to go out of business, to "specialize" in nonmedical problems, or to cooperate with the auxiliary. At the same time, the Venezuelan

peasant has become increasingly sophisticated in his expectations concerning medical services.

Other problems center on community relations. Villagers scheduled to lose their aide for the 4-month training period are sometimes reluctant to accept periodic visits by a physician as a substitute. Some communities also cannot accept the limitations placed on the services which the *medicina simplificada* auxiliaries may provide. They do not understand, for example, why auxiliaries cannot deliver babies or prescribe some of the drugs, as they did when they were aides. In such instances, a supervisory physician or nurse meets with the auxiliary and the community to attempt to resolve the difficulty.

The training of the auxiliaries has also presented certain difficulties or, more accurately, challenges. Instructors report difficulty in presenting concepts and techniques in words and ways that are comprehensible to the trainees. The difficulty of teaching rather sophisticated concepts to students who have only a primary education and who may not speak Spanish as their first language is illustrated by the experience of an instructor who was explaining the transmission of parasites. After speaking several days on the subject, he was certain that the trainees understood. He then summarized the major points, concluding his remarks with "etc." One student, whose native language was not Spanish, raised his hand and reported that he understood everything up to the very end—what was "etc.?" The finding of instructors from the same region—who speak the native language—will help to lessen such problems in communication, as will experience and improvements in the training of the instructors.

Most Venezuelan health officials firmly believe that the successes of the *medicina simplificada* program outweigh the difficulties encountered thus far. The most outstanding accomplishment of the program has been its contribution to improvement of the quality and quantity of health services in the rural zones of Venezuela. Trained auxiliaries have replaced untrained aides and have helped to expand services, particularly in the areas of maternal and child health, environmental sanitation, and preventive care. Table 4 illustrates the growth in selected services from 1963 to 1966, a growth which has continued; however, more recent statistical data are not available.

Regarding the program's impact on mortality and morbidity, administrators believe that the auxiliaries have contributed to significant gains in the control of tuberculosis, gastrointestinal illnesses, and diseases controllable by immunization—most particularly, tetanus neonatorum. The lack of reliable statistics, however, makes such changes extremely difficult to accurately assess.

According to several observers, *medicina simplificada* has also had beneficial effects on the use of health workers and on the coordination of services in the areas where the program operates. With the auxiliaries to provide many preventive and routine curative services, the physicians are able to use their time more efficiently. Nurses, given the opportunity to train and supervise auxiliaries, have proved to be very capable. Finally, the auxiliaries themselves have demonstrated that they can work productively with a minimum of supervision.

An additional important outcome of the program has been the interest it has created in health care in local communities. Supervisors note that many families have been convinced to adopt new health habits and to seek care for illness. At the community level, groups have become active in seeking an auxiliary and in maintaining a successful program.

Summary and Implications

Medicina simplificada, a Venezuelan program, employs auxiliaries to deliver basic curative, preventive, and educational health services in rural areas. The auxiliaries, who have a primary school education, are given an intensive 4-month training course for the program. As of 1971 the program is operating in 12 States and Federal territories as part of a regionalized health care system. It is hoped that the program will be extended throughout the country when the necessary health infrastructure is developed.

Medicina simplificada was designed to fill gaps in health services in rural Venezuela at a particular point in time.

Table 4. Selected activities of *medicina simplificada* auxiliaries, 1963–66

Activity	1963	1964	1965	1966[1]	Total
Births registered	266	1,201	1,567	1,677	4,711
Curative and first-aid attention	8,706	34,736	46,956	58,607	149,005
PPD tests	.....	944	912	4,079	5,935
Immunizations:					
BCG	356	2,119	1,464	2,948	6,887
Smallpox	600	2,094	7,291	8,426	18,411
Tetanus	.....	.....	.....	1,264	1,264
DTP	2,420	7,831	13,428	9,823	33,506
Typhoid	1,560	5,970	10,378	8,039	25,947
Home visits	191	891	1,155	2,479	4,716
Educational programs	.....	532	1,314	1,608	3,454
Samples taken for laboratory examination	62	272	680	405	1,419

[1]Figures for the first part of the year only.
SOURCE: reference 22.

The applicability of this program to other times and settings is necessarily limited. Venezuelan health leaders acknowledge that the program, as it stands now, is likely to be changed or eliminated in the future when more highly educated health personnel become available. Similarly, the program cannot be duplicated in detail in countries which differ from Venezuela in disease patterns, distribution of population, available resources, and relative mix of private sector and government participation in health care.

Several broad principles of the *medicina simplificada* program, however, may be instructive for health planners in a variety of settings. Many countries, including the United States, have too few medical professionals in the rural areas and are beginnig to use auxiliary personnel to provide basic health services. Although the sophistication of auxiliaries will vary among countries, planners everywhere could benefit from the Venezuelan findings regarding the effectiveness of auxiliaries who identify strongly with the area and the people they serve and the importance of incorporating the auxiliaries into a system that can provide adequate supervision and referral services for them.

Another feature of the *medicina simplificada* program meriting attention is its broad concept of the health team. It views community workers of all types as members and attempts, if not always successfully, to coordinate their activities with those of physicians, dentists, nurses, and auxiliaries. The program also attempts to use nurses and auxiliaries as fully as possible and to urge physicians to see themselves as cooperating rather than dominating team members. One of the programs's pioneers, Dr. López Vidal, has stated that physicians are often the worst enemy of good health care because of their narrow focus on curative medicine and their evaluation of their own importance. He believes the *medicina simplificada,* along with changes in medical education, may contribute to a change in this mentality.

A third, particularly noteworthy characteristic of the program is its attempt to deliver as comprehensive a set of services as is possible with available resources. The emphasis on preventive and educational as well as curative services holds a lesson for developed and developing countries alike, as does the principle that health cannot be separated from other aspects of socioeconomic development and well-being.

A final feature of the program which seems to merit further study is the combination of minimal national standards with considerable latitude in local program planning and implementation. Such a study would be particularly timely, given our current discussion in the United States on the optimal way to combine Federal and State participation in organizing and financing health care.

A young and still far from perfect program, *medicina simplificada* offers an innovative approach to filling gaps in rural health care and deserves far more attention than it has received to date.

References

1. Training of medical assistants and similar personnel. WHO Tech Rep Ser No. 385. WHO, Geneva, 1968.
2. Rubel, A. J.: Social science and health research in Latin America. Milbank Mem Fund Q 46, No. 2, pt. 2: 21–33, April 1968.
3. Drobny, A.: Latin American experience related to the solution of rural health problems in the United States. Am J Public Health 63: 66–70, January 1973.
4. Baldó, J. I.: The Venezuelan program in "simplified medicine." Paper presented at the Josiah Macy Jr. Foundation Conference on the Medical Assistant in Latin America, Lima, Jan. 23–25, 1969. Mimeographed.
5. Fendall, N. R. E.: Auxiliaries in health care. Johns Hopkins Press, Baltimore and London, 1972.
6. Gish, O., editor: Health manpower and the medical auxiliary. Intermediate Technology Development Group, London, 1971.
7. King, M. H., editor: Medical care in the developing countries. Oxford University Press, Nairobi and London, 1966.
8. Bryant, J.: Health and the developing world. Cornell University Press, Ithaca and London, 1969.
9. King, M. H.: The auxiliary—his role and training. J Trop Med Hyg 73: 336–346, December 1970.
10. Vaughn, J. P.: Are doctors always necessary? J Trop Med Hyg 74: 265–271, December 1971.
11. Field, M. G.: Soviet socialized medicine. Free Press, New York, 1967.
12. Sidel, V. W., and Sidel, R.: Serve the people: observations on medicine in the People's Republic of China. Josiah Macy Jr. Foundation, New York, 1973.
13. Sadler, A. M., Sadler, B. L., and Bliss, A. A.: The physician's assistant, today and tomorrow. Yale University Press, New Haven, 1972.
14. Lippard, W., and Purcell, E. F., editors: Intermediate level health practitioners. Josiah Macy Jr. Foundation, New York, 1973.
15. Fendall, N. R. E.: Primary care in developing countries. Int J Health Serv 2: 297–315, May 1972.
16. Gabaldón, A.: Health services and socioeconomic development in Latin America. Lancet No. 7598: 739–744, Apr. 12, 1969.
17. Facts on health progress, 1971: goals in the charter of Punta del Este. Scientific publication No. 277. Pan American Sanitary Bureau, PAHO, September 1971.
18. López V., E.: Atención de la salud de la población rural dispersa. Bol of Sanit Panam 63: 516–529, December 1967.
19. Manual normativo para auxiliares de enfermeria y otro personal voluntario. Ed. 6. Ministerio de Sanidad y Asistencia Social, Caracas, 1968; *(a)* p. vii; *(b)* p. 34–38; *(c)* pp. viii, 38–41; *(d)* pp. 2–4, 19–27.
20. Becerrit H., D., Castellanos O., M., de Peralta, C., and Rojas G., H.: Aportes de enfermeria al programa de medicina simplificada en Venezuela. Paper read at the Ninth Interamerican Congress of Nursing and the First Congress of the Interamerican Federation of Nurses. Caracas, November 1970; *(a)* p. 17.
21. Baldó, J. I., Curiel, J., and Lobo C., O.: La tuberculosis rural en Venezuela. Bol of Sanit Panam 58: 66–82, January 1965.
22. Lobo C., O., and Hernández, D.: Programa nacional de medicina simplificada, anos 1962–66. Paper read at the first seminar on *medicina simplificada,* sponsored by the Ministry of Health and Social Assistance, Caracas, May 1966.